FIG. 1

```
mrg3    LCPIWYHCHRPEHTSTVMCAVIWVLSLLICILNSYFCGFLNTQYKNENGCLALNFFTAAYLMFLFVVLCLSSLALVA
mrg4    LCPTWYHCHRPVHTSTVMCAAIWVLSLLICILNSYFCGVLHTRYDNDNGCLATNIFTASYMIFLLVVLCLSSLALLA
mrg5    LCPIWYHCRRPEHTSTVMCAVIWVLSLLICILDGYFCGYLDNHYFNYSVCQAWDIFIGAYPMFLFVVLCLSTLALLA
mrg6    LCPIWYHCRRPEHTSTVMCAVIWVLSLLICILNSYFCGFLNTQYKNENGCLALSFFTAAYLMFLFVVLCLSSLALVA
mrg7    LCPTWYRCHRPVHTSTVMCAVIWVLSLLICILNSYFCAVLHTRYDNDNECLATNIFTASYMIFLLVVLCLSSLALLA
mrg8    LCPIWYRCHRPEHTSTIMCVVIWVLSLLICLLNRYFCDLFGPKYEINSVCQASEFFIRIYPIFLFVVLCFSTLTLLA
Human1  LWPIWYRCHRPTHLSAVVCVLLWALSLLRSILEWMLCGFLFSGA-DSAWCQTSDFITVAWLIFLCVVLCGSSLVLLI
Human2  LWPIWYRCRRPRHLSAVVCVLLWALSLLLSILEGKFCGFLFSDG-DSGWCQTFDFITAAWLIFLFMVLCGSSLALLV

mrg3    RLFCGTGQIKLTRLYVTIMLSILVFLLCGLPFGIHWFLLFKIKDDFHVFDLGFYLASVVLTAINSCANPIIYFFVG
mrg4    RLFCGAGQMKAYQFHVTTLLTLLVFLLCGLPIAIYCFLLFKIKGDFHVLDVNLYLALEVLTAINSCANPIIYFFVG
mrg5    RLFCGARNMKFTRLFVTIMLTVLVFLLCGLPWGITWFLLFWIAPGVFVPDYSPLL---VLTAINSCANPIIYFFVG
mrg6    RLFCGARNMKFTRLFVTIMLTVLVFLLCGLPWGITWFLLFWIAPGVFVLDYSPLL---VLTAINSCANPIIYFFVG
mrg7    RLFCGAGQMKLTRFHVTILLTLLVFLLCGLPFVIYCILLFKIKDDFHVLDVNLYLALEVLTAINSCANPIIYFFVG
mrg8    RLFCGAGKKKFTRLFMTIMVTILVFLLCGLPLGFLWFLLPWIEGGFSILDYRFFLASLVLTAVNSCANPIIYFFVG
human1  RILCGSRKIPLTRLYVTILLTVLVFLLCGLPFGIQFFLFLWIHVDREVLFCHVHLVSIFLSALNSSANPIIYFFVG
human2  RILCGSRGLPLTRLYLTILLTVLVFLLCGLPFGIQWFLILWIWKDSDVLFCHIHPVSVVLSSLNSSANPIIYFFVG
```

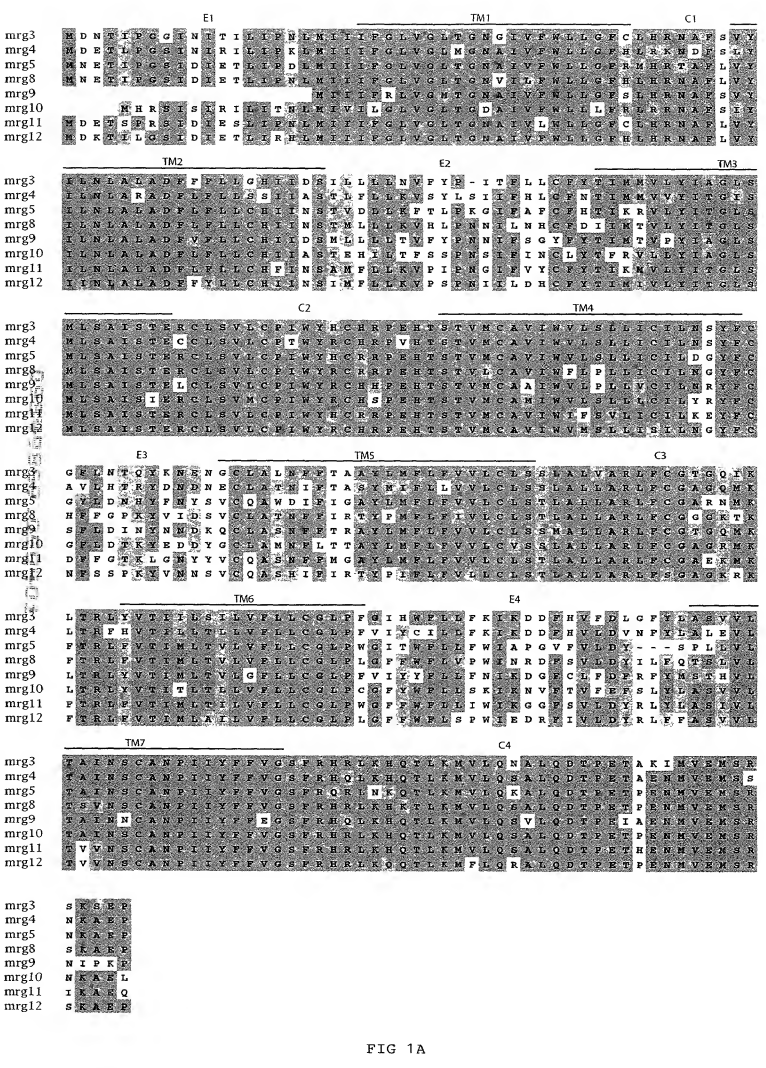

E1
TM1
C1
TM2
E2
TM3
C2
TM4
E3
TM5
C3
TM6
E4
TM7
C4
mrg3
mrg4
mrg5
mrg8
mrg9
mrg10
mrg11
mrg12

FIG 1A

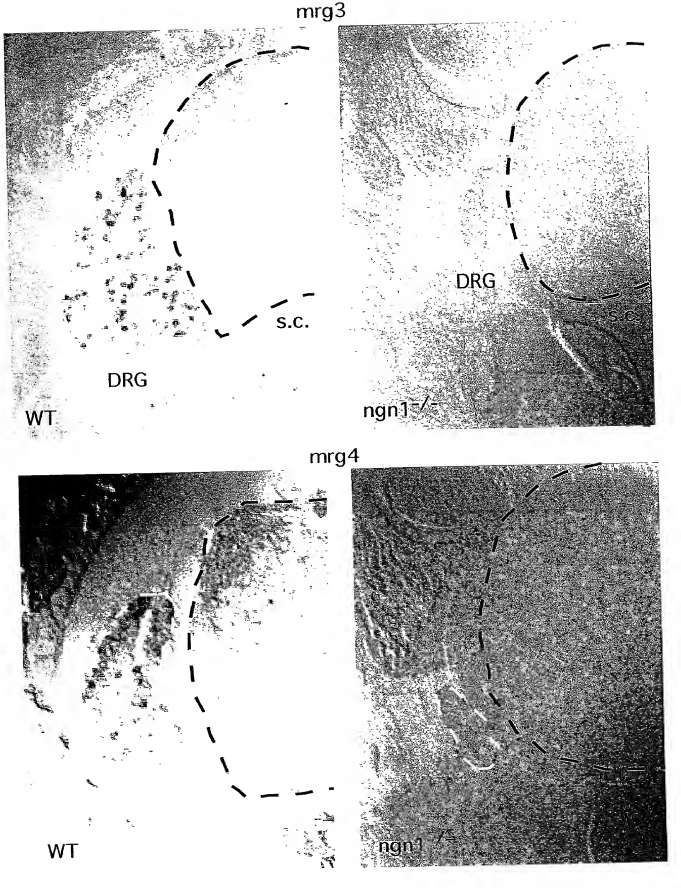


FIG 2

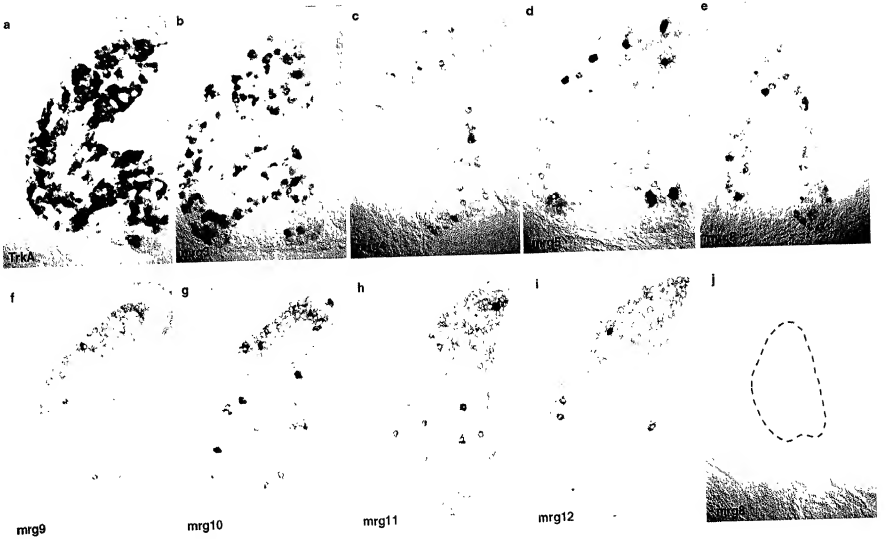


FIG 2A

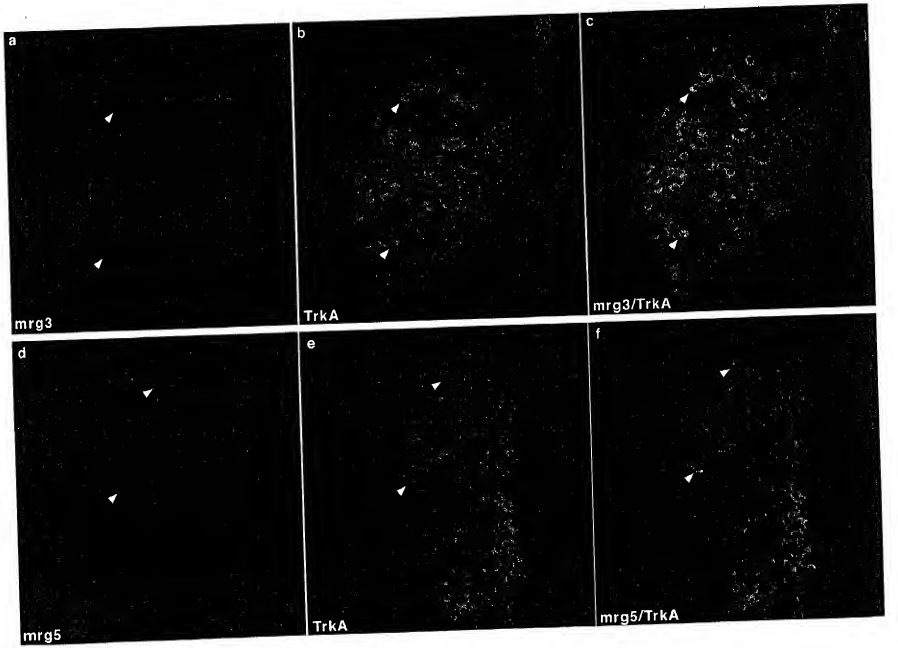


FIG 2B

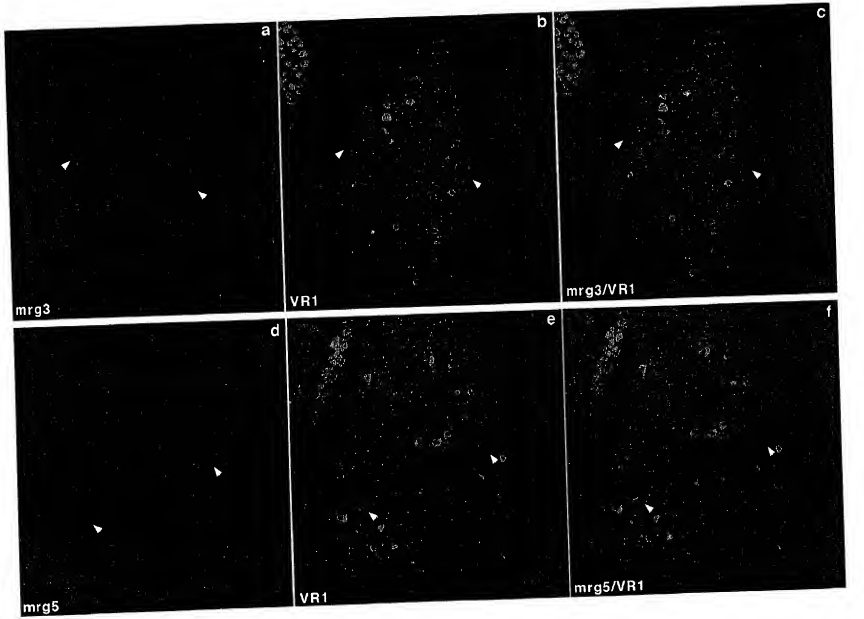


FIG 2C

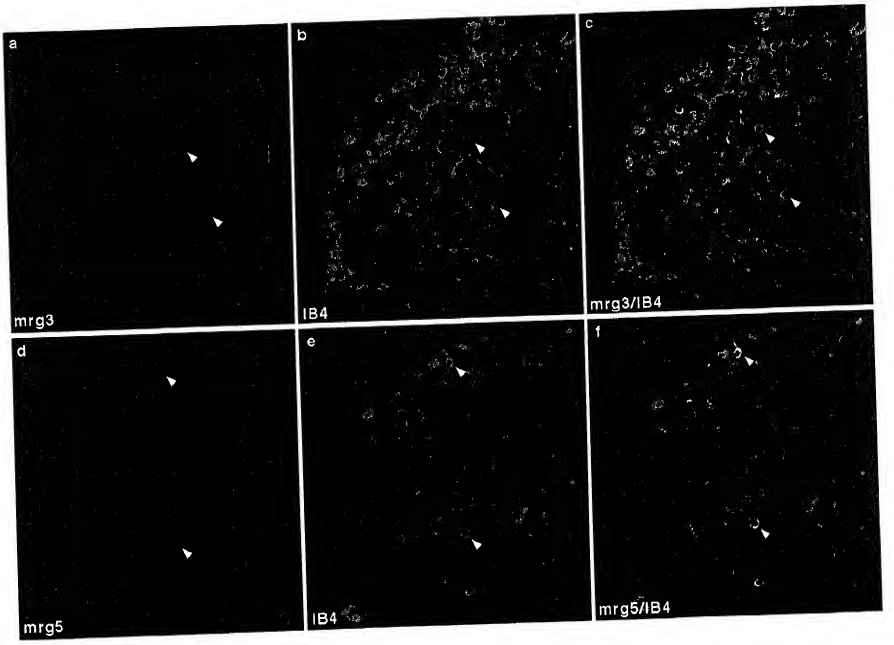


FIG 2D

Figure 3

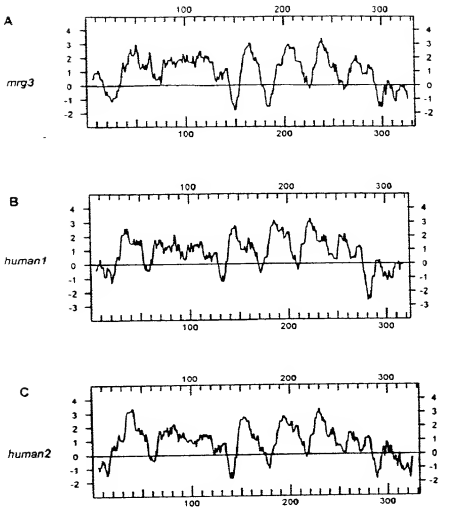
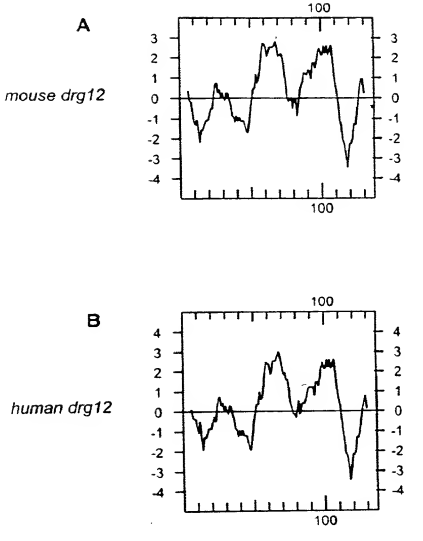


Figure 4


A
mouse drg12
100
3
2
1
0
-1
-2
-3
-4
100
B
human drg12
100
4
3
2
1
0
-1
-2
-3
-4
100

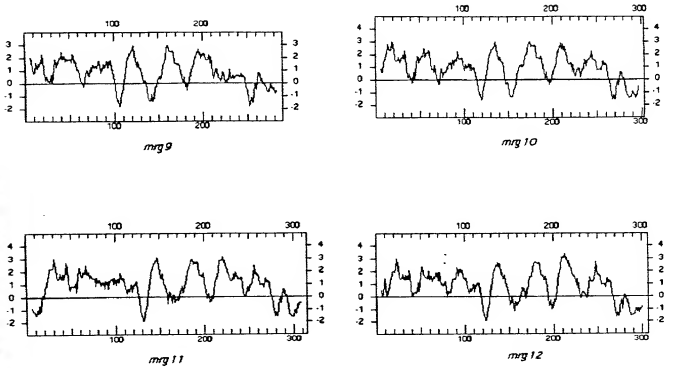


FIG. 5

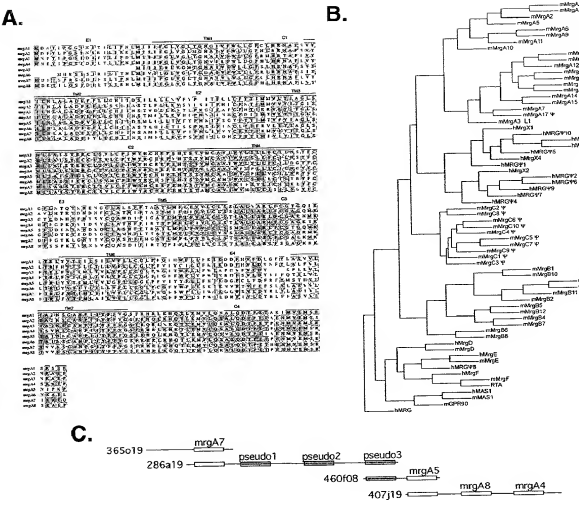

A.
B.
MrgA
MrgC
MrgB
C.
mrgA7
365o19
286a19
pseudo1
pseudo2
pseudo3
460f08
mrgA5
407j19
mrgA8
mrgA4

FIG 6

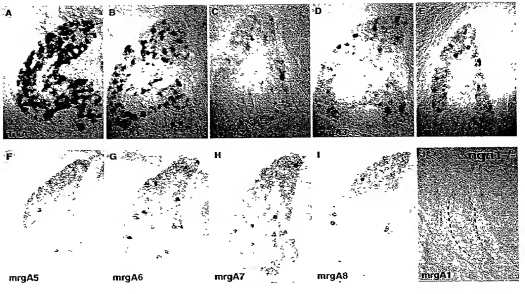


FIG 7

FIG 8

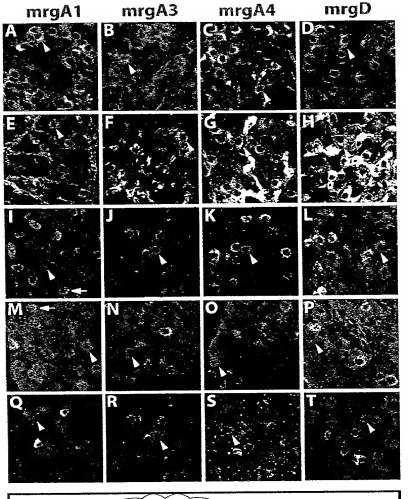
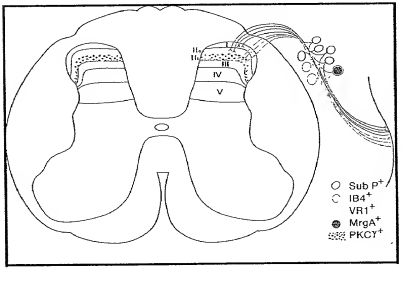

mrgA1
mrgA3
mrgA4
mrgD
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
Q
R
S
T

FIG 9


II
III
IV
V
Sub P+
IB4+
VR1+
MrgA+
PKCγ+

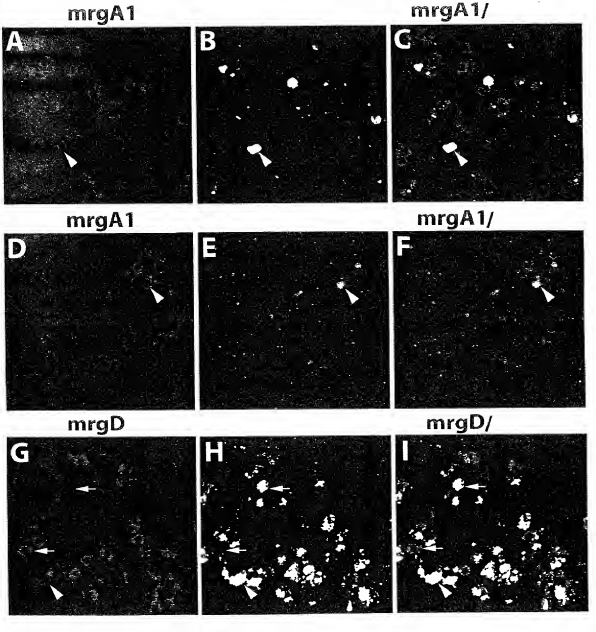


FIG 10

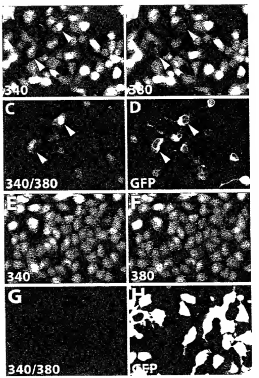


FIG 11

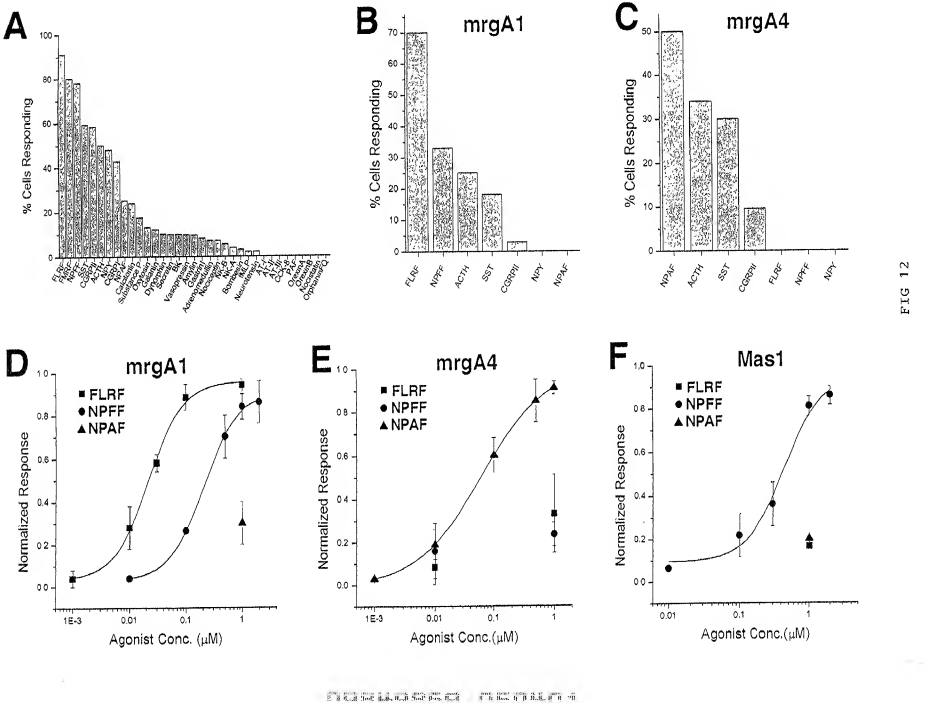

A
% Cells Responding
B
mrgA1
% Cells Responding
FLRF
NPFF
ACTH
SST
CGRPII
NPY
NPAF
C
mrgA4
% Cells Responding
NPAF
ACTH
SST
CGRPII
FLRF
NPFF
NPY
D
mrgA1
FLRF
NPFF
NPAF
Normalized Response
Agonist Conc. (μM)
E
mrgA4
FLRF
NPFF
NPAF
Normalized Response
Agonist Conc.(μM)
F
Mas1
FLRF
NPFF
NPAF
Normalized Response
Agonist Conc.(μM)

FIG 12

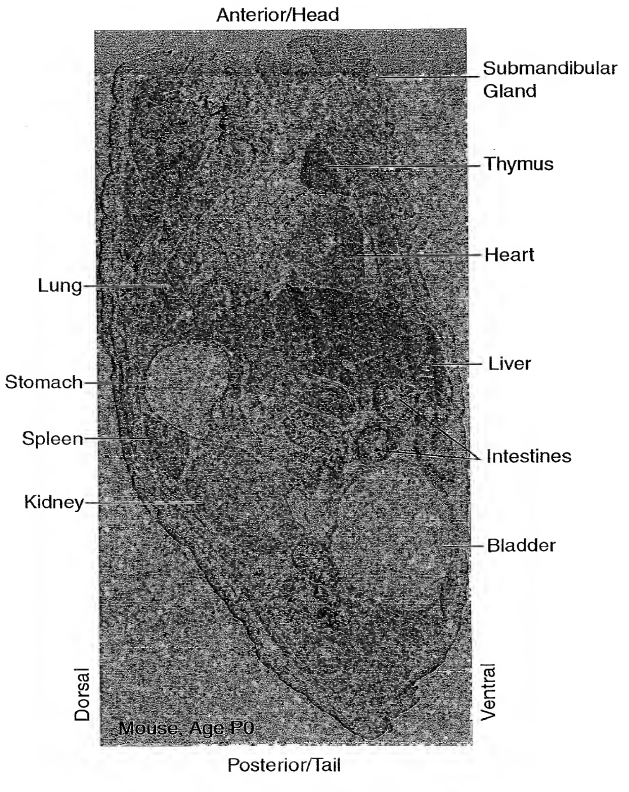

mMrgB1
Anterior/Head
Submandibular Gland
Thymus
Heart
Lung
Liver
Stomach
Spleen
Intestines
Kidney
Bladder
Dorsal
Ventral
Mouse, Age P0
Posterior/Tail

FIG 13

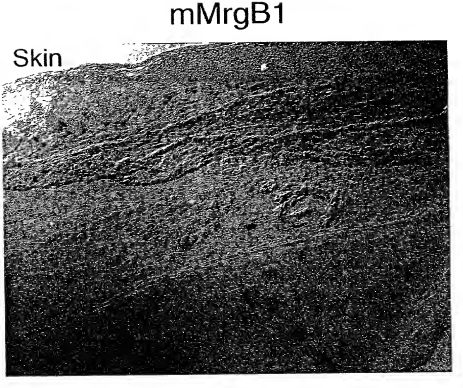


FIG 14

mMrgD in Adult DRG

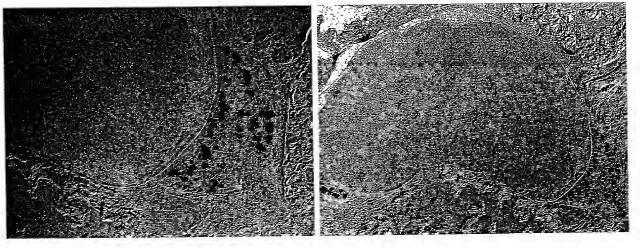


FIG 15